

Avanti® J Series Centrifuges Preinstallation

INTRODUCTION

Purchase of an Avanti® J series centrifuge includes installation and Basic Instrument Training for two operators. This guide is provided to assist you in preparing your laboratory and the designated operators so that installation and training can be completed efficiently and successfully.

SPECIFICATIONS

WEIGHT

310 kg (680 lb) Avanti J-30I
290 kg (640 lb) Avanti J-26XP series
300 kg (660 lb) Avanti J-HC
267.4 kg (589 lb) Avanti J-E

DIMENSIONS

Height (door closed)
Avanti J-E 91.4 cm (36.0 in.)
All other Avanti J series 116 cm (45.5 in.)

Height (door open)
Avanti J-30I 141.0 cm (55.5 in.)
Avanti J-26XP series 149.0 cm (58.5 in.)
Avanti J-HC 152.0 cm (59.9 in.)
Avanti J-E 152.4 cm (60.0 in.)

Width
Avanti J-E 63.5 cm (25.0 in.)
All other Avanti J series 71.0 cm (28.0 in.)

Depth (including air diverter extending from back panel)
Avanti J-E 95.9 cm (37.75 in.)
All other Avanti J series 102.0 cm (40.25 in.)

CONTROL FEATURES

Ambient temperature
Avanti J-HC 15 to 40°C
Avanti J-E 15 to 35°C
All other Avanti J series 16 to 38°C

PHYSICAL DATA

Electrical supply Class I
Maximum heat dissipation into room under steady-state conditions 2.0 kW (6900 Btu/h)
Humidity restrictions <95%, noncondensing
Installation (overvoltage) category II
Pollution degree 2*

POWER REQUIREMENTS

Nominal Instrument Voltage Rating	Line Frequency/Current	Plug Included
Single-phase, 200/208/240 V	50/60 Hz/24 A	yes
Single-phase, 230 V	50 Hz/24 A	no
Three-phase, 220/380 V + Neutral†	50 Hz/12 A	no

INSTALLATION REQUIREMENTS

Installation Category

This centrifuge is classified as installation category II.

* Normally only nonconductive pollution occurs; occasionally, however, a temporary conductivity caused by condensation must be expected.

† Unbalanced three-phase. Split for single-phase operation internally.

Ventilation

The centrifuge must have adequate air ventilation to ensure compliance to local requirements for vapors produced during centrifuge operation.



Biosafety Considerations

If sample containment is required, Beckman Coulter can provide a Class II or III biosafety cabinet specially designed to house the centrifuge. Contact your local Beckman Coulter office for more information.

Electrical Requirements

Avanti J series centrifuges come with one of three types of power cords. For single-phase 200/208/240 V connections, a permanently attached three-wire UL/CSA approved cord with a NEMA type 6-30P plug is provided. For single-phase 230 V connections, a permanently attached three-wire CENELEC harmonized cord without plug is provided. For three-phase connections, a permanently attached five-wire CENELEC harmonized cord without plug is provided. Terminate the open end of the harmonized cords with a certified single or three-phase connector suitable for the power supplied in the country of intended use.

Required Wire Connections

Wire Insulation Color	Terminal	Symbol	
		Harmonized	North American
Green/Yellow	Earth-ground		
Light Blue	Neutral	N	L
Brown	Live or Line	L	L
Black (three-phase connections only)	Live or Line (qty 2)	L	—

Avanti J series centrifuges require a single grounded outlet, either 50/60 Hz single-phase, 180 V to 264 V, 30 A, or 50 Hz three-phase, 313 V to 457 V plus neutral, 16 A. Install only one Avanti J centrifuge per circuit.

Power to the centrifuge should originate directly from a main power line transformer at a power source known to be clear of erratic loads, spikes, and electromagnetic interference. Make sure there are properly rated thermal circuit breakers at the wall service panel to protect the centrifuge circuit. If fuses must be used instead of the specified circuit breakers, the fuses may require a rating of greater than 30 amperes (for single-phase centrifuges) or greater than 16 amperes (for three-phase centrifuges).

Prior to instrument purchase, the line voltage should be checked with a voltmeter and the appropriate instrument ordered. After delivery, verify that the voltage indicated on the centrifuge's name rating plate (on the back of the control head) agrees with the measured line voltage. If the measured voltage is not within the indicated range, contact your Beckman Coulter Field Service representative. Your representative can rewire the centrifuge to adapt it to the available line voltage.

To ensure safety, the instrument should be wired to a remote emergency switch (preferably outside the room where the centrifuge is housed, or adjacent to the exit from that room), in order to disconnect the instrument from the main power source in case of a malfunction.

Figure 1 shows the power connection for single-phase Avanti J series centrifuges; Figure 2 shows the power connection for three-phase Avanti J series centrifuges. The single-phase system includes earth ground and two power leads with 30-ampere circuit breakers. The three-phase system includes earth ground and three power leads with minimum 16-ampere circuit breakers and common neutral connection.

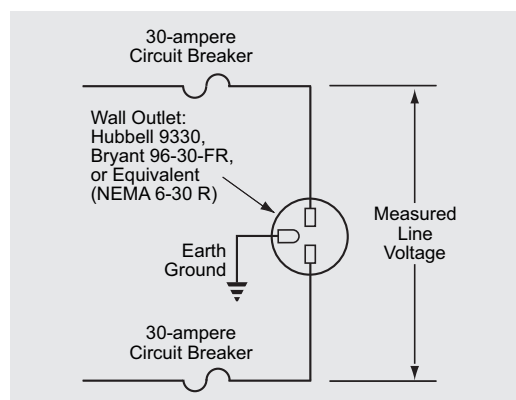


Figure 1. Avanti J Series Centrifuge Single-Phase Power Connection

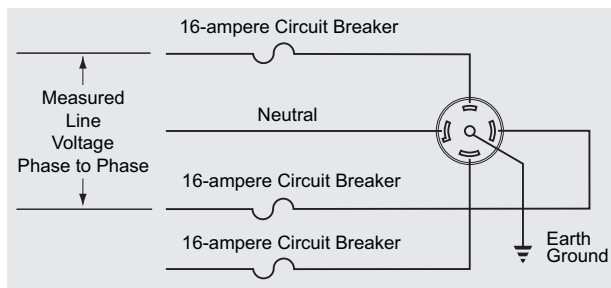


Figure 2. Avanti J Series Centrifuge Three-Phase "Y" Power Connection



WARNING

To reduce the risk of electrical shock, this equipment uses a three-wire or five-wire electrical cord and plug to connect the centrifuge to earth-ground. To preserve this safety feature, make sure that the matching wall outlet receptacle is properly wired and earth-grounded. Check that the line voltage agrees with the voltage listed on the name rating plate affixed to the centrifuge.

Additional Requirements for Three-Phase Power Connections

For three-phase power service to the Avanti J, use the "Y" connected three-phase configuration shown in Figure 3. Also note the following information:

- The steady state current draw of the centrifuge can be as high as 12 amperes per phase, depending on the voltage.
- Inrush current to the centrifuge is 100 amperes for up to 2 seconds during the refrigeration start period. Circuit breakers, whether thermal or magnetic actuating, must be a "motor start" delay type.
- The centrifuge can tolerate a drop of 15 volts during the start period at low line voltage (see Figure 3 for the acceptable voltage ranges). The main power supply cable for the centrifuge must be of sufficient wire gauge to provide this condition. The wire gauge required at a particular site must be determined by a facilities engineer at that site.

Space Requirements

Dimensions for the Avanti J-26XP series, and Avanti J-30I centrifuges are shown in Figure 4; for the Avanti J-HC centrifuge in Figure 5, and for the Avanti J-E in Figure 6. In addition to space for the instrument itself, allow a 7.7-cm (3-in.) clearance on each side of the instrument and a 16-cm (6.25-in.) clearance behind the instrument for air circulation.

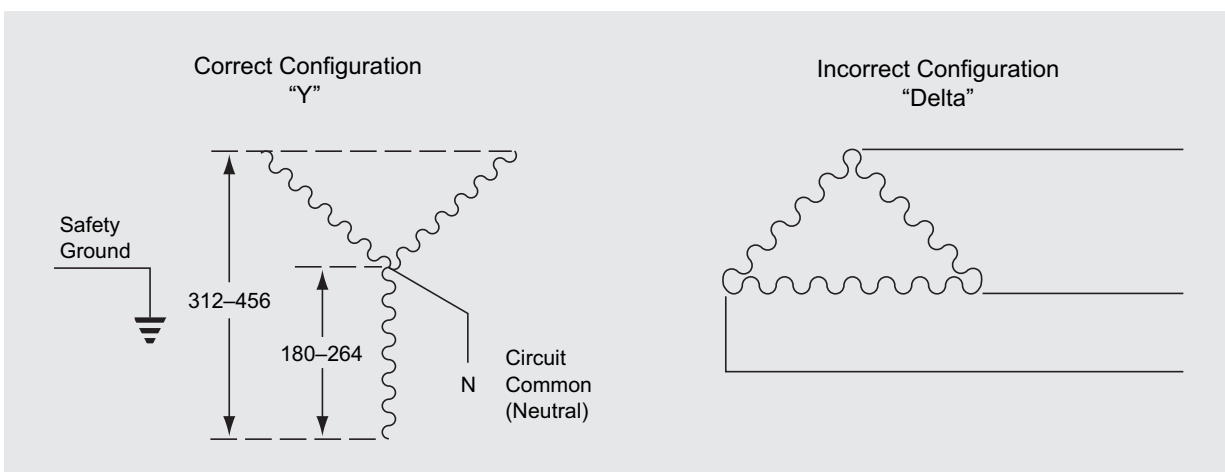


Figure 3. Correct and Incorrect Three-Phase Configurations

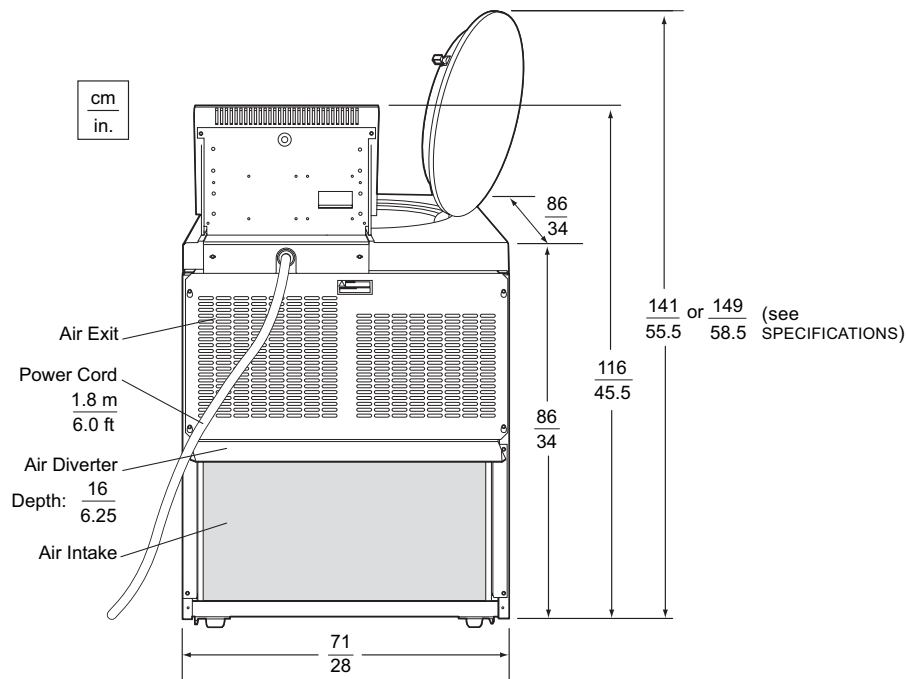


Figure 4. Rear View and Dimensions of the Avanti J-26XP Series and Avanti J-30I Centrifuges

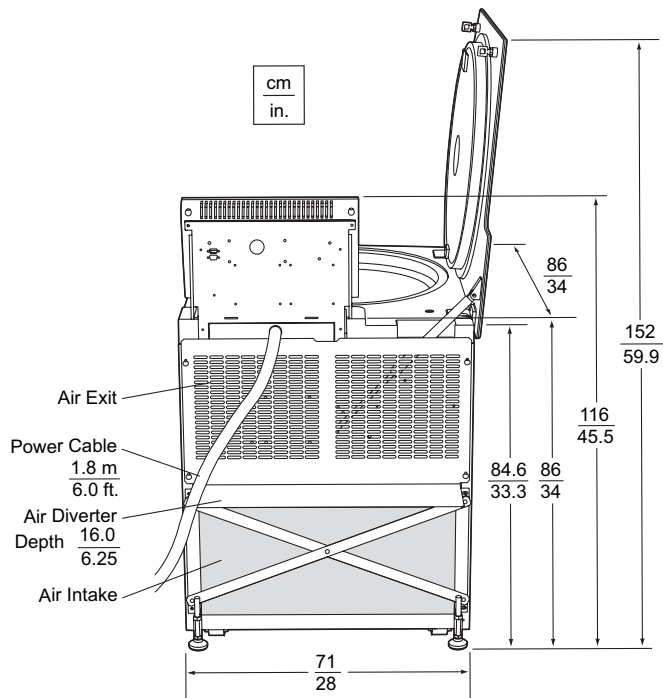


Figure 5. Rear View and Dimensions of the Avanti J-HC Centrifuge

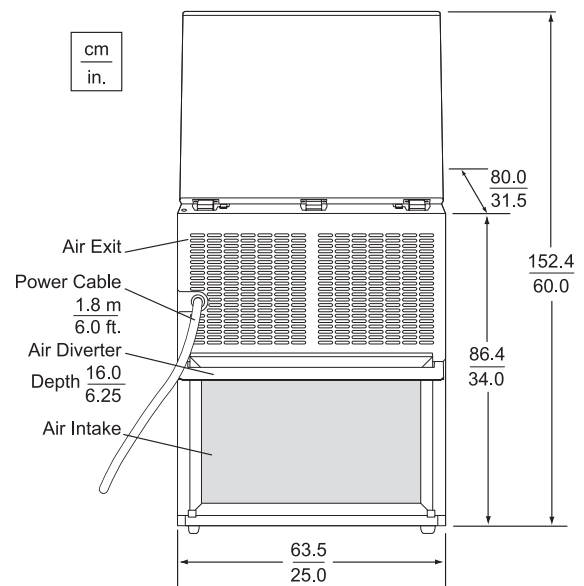


Figure 6. Rear View and Dimensions of the Avanti J-E Centrifuge

The air diverter, shown in Figures 4, 5, and 6 should touch (or nearly touch) the wall behind the centrifuge. The power cord should be placed to one side of the air diverter. To avoid damaging the power cord when installing or moving the centrifuge, be sure to move the cord out of the way before pushing the centrifuge against the wall.

SUPPLIES FOR INSTALLATION

Avanti J series centrifuges come with a ship kit, which includes the following:

- Anchoring kit (includes hardware and installation instructions)
- Instruction manual and accompanying documents
- Foot pedal pad (not included with Avanti J-E)
- Air filter

We recommend that you order sufficient quantities of your required labware in advance to avoid delay in instrument operation.

For your convenience, all Avanti J series centrifuge supplies and accessories are described in the Beckman Coulter *High Performance, High Speed, High Capacity Rotors, Tubes & Accessories* catalog (BR-8102, available at www.beckmancoulter.com).

SECURING THE CENTRIFUGE TO THE FLOOR

For the Avanti J series centrifuge to meet CE requirements, it must be secured to the floor using the anchoring hardware kit (part number 367459 for the Avanti J-HC, 369168 for the Avanti J-E, or 364996 for all other models) shipped with the centrifuge. This will prevent the centrifuge from moving in the unlikely event of a rotor mishap.

Instructions for installing the anchoring hardware (publication J3HC-TB-002 for the Avanti J-HC, SJ-TB-003 for the Avanti J-E, or J325-TB-003 for all other models) are packaged with the kit. Two steps are required for installation:

1. Drilling holes in the laboratory floor where the centrifuge will be located. The anchoring instructions include a full-sized template which shows where these holes must be drilled in relation to the wall behind the centrifuge. *This step must be done by the customer.*

NOTE

The Beckman Coulter representative installing the centrifuge will need clearances of approximately 61 cm (2 ft) on each side of the instrument to attach the shackles through the brackets. After installation, the required clearances are 7.6 cm (3 in.) at the sides and 16 cm (6.25 in.) at the back of the instrument.

2. Attaching the mounting brackets to the floor, and inserting shackles through the floor brackets and the brackets on the centrifuge frame. *This step will be done by the Beckman Coulter Field Service representative during installation.*

NOTE

Beckman Coulter representatives are not equipped to drill holes in your floor. The holes must be drilled *before* installation.

BIO-SAFETY LEVEL 3 INSTALLATION

For laboratories with epoxy aggregate floors, such as BSL-3 labs, a non-invasive installation kit (PN 393830) is available for Avanti J series centrifuges (except for the Avanti J-HC). The kit which consists of an adhesive-backed mounting plate, is CSA certified for use on epoxy aggregate floors only.

ROTOR USE INFORMATION



CAUTION

Do not use the Beckman Coulter JA-10, JS-7.5, JA-14, or JS-13 rotors in an Avanti J series centrifuge before reading this information.

Rotors used in Avanti J series centrifuges must have drive pins in the rotor drive hole (see Figure 7). These drive pins engage with the centrifuge drive hub to ensure that the rotor does not slip during acceleration. Some Beckman Coulter rotors, including the JA-10, JS-7.5, JA-14, and the JS-13, were originally manufactured without drive pins because these rotors did not need pins to run in J2 series centrifuges.

Check all J2 series rotors for drive pins before using them in an Avanti J series centrifuge. To check for drive pins, hold the rotor up or turn it on its side and look into the drive hole. If you do not see two metal pins near the top of the hole, do not use the rotor in the Avanti J. Contact Beckman Coulter Field Service for information on returning the rotor to the factory for upgrading.



CAUTION

JS-4.2 and JS-4.2A rotors manufactured before January, 2000 must be modified before use in the Avanti J-HC. (Rotors manufactured before January, 1997 cannot be modified.) Contact Beckman Coulter Field Service for more information.

OPERATOR TRAINING REQUIREMENTS

Immediately following the installation of your Avanti J series centrifuge, a Beckman Coulter Field Service representative will train a maximum of two operators in basic instrument operation. Additional operators can be trained during later sessions (maximum of two per training session). Contact Beckman Coulter Field Service for information.

The successful implementation of your new Avanti J series centrifuge depends upon the training that your operators receive. To ensure a focused and optimized training session, the following guidelines have been established:

- Basic Instrument Training requires a maximum of two (2) hours. It is imperative that the operators are available and uninterrupted throughout this initial training period.
- No more than two operators can be trained on the instrument at any given time. Learning is accelerated when the operators have hands-on instruction. With only one centrifuge control panel, this cannot be achieved with more than two operators.

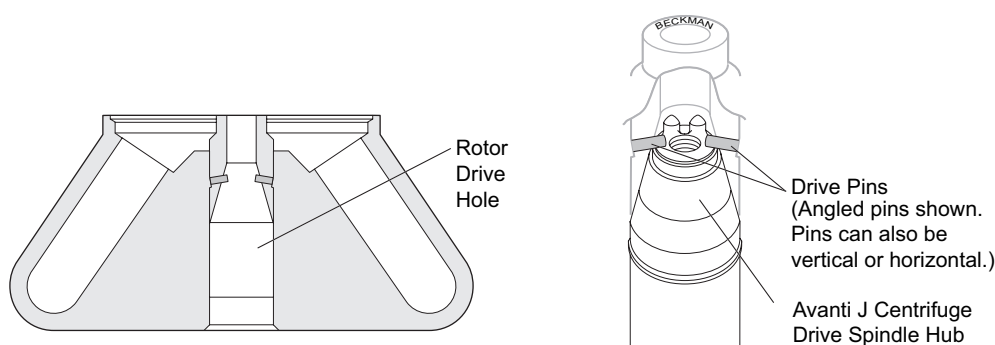


Figure 7. Checking the Rotor for Drive Pins

Preinstallation Checklist

The following is a list of items necessary for installation of the Avanti J series centrifuge system. Use this checklist to verify the items that you have and other items as you receive them. To ensure a successful installation, please confirm that you have these items prior to scheduling the installation with your local Beckman Coulter service office.

AVANTI J SERIES CENTRIFUGE

- ☐ Avanti J Series Centrifuge
- ☐ Power requirements
- ☐ Space requirements
- ☐ Centrifuge instruction manual; preinstallation instructions
- ☐ Anchoring kit and anchoring instructions

OPERATOR

- ☐ Up to 2 operators available for 2 hours training at time of installation

ROTORS/CONSUMABLES

- ☐ Which rotors will be available at time of installation?

- ☐ What type of tubes and bottles will be on hand at time of installation? _____

SERVICE

- ☐ Has a service contract been ordered?
- ☐ Instrument certification?



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